AWARD-WINNER PROFILE

Harris recognized for precision and leadership in heavy equipment operation

NPS PHOTO BY RICHARD MAYLE

Paul Harris

Paul Harris is a heavy equipment operator at Redwood National and State Parks, California. Since he began in this position more than a decade ago, Paul has taken his job to the next level. Paul's skill has helped make ecological restoration projects a success by turning the vision of scientists into reality. "I enjoy putting the landscape back to where higher intelligence thinks it needs to be," he says. His accomplishments earned him the 2002 Director's Award for Excellence in Natural Resource Stewardship Through Maintenance.

Presenting the award last August, Mike Soukup, NPS Associate Director for Natural Resource Stewardship and Science, introduced Paul as "the surgeon general of the National Park Service maintenance force." Paul is known for his superior ability to operate equipment and direct crews in environmentally sensitive areas. For Paul the skill comes naturally: "I'm just accomplishing the tasks that need to be done; I try to improve the roads and parks without harming anything important." Paul manipulates massive machinery to perform delicate and precise tasks. His talent was put to the test in returning 3 acres of paved sawmill yard to the original stream and wetland configuration established by hydrologists. Known as the Elk Meadow Day Use Area, it is now the focal point for visitor observation of Roosevelt elk, great blue heron, kingfisher, and green-winged teal, among other wildlife. For Paul to complete this project, he needed to operate an excavator on slopes of 60%.

Paul's capabilities have earned him great respect and a reputation that has spread throughout the region. He is a leader in his field and has managed to "operate" on steep terrain without a single accident. His goal every day is to keep himself and his crew safe. "We all want to go home at night; that's what matters the most to me." Paul's ability has given him the opportunity to work on projects at Santa Monica Mountains National Recreation Area, also in California, and Puukohola Heiau National Historic Site, Hawaii. At Santa Monica Mountains he removed 2 miles of road that was in the middle of an ecologically sensitive riparian canyon. At Puukohola Heiau, Paul was instrumental in removing almost 2,000 feet of road through archeological and burial sites. This additional work sometimes kept him away from his family for up to a month at a time, but he never complained; his dedication to the task at hand was always a priority.

Paul works routinely with wildlife biologists, geologists, hydrologists, and archeologists who make up the resource staff at Redwood. In helping to formulate strategies for the restoration projects, Paul is a true leader and is always willing to listen. He is a team player who allows his ability to speak for itself. ■

NPS PHOTOS (BOTH)

Paul Harris's precision earthmoving skills (before, top) resulted in the 2001 re-creation of Elk Meadow (after, bottom), a wetland at Redwood National Park, California, that had been used for several decades as a storage area for logs awaiting processing at a sawmill.

Restoration accomplishments at Civil War earthworks

by Terri Hogan

Vegetation monitoring completed in 2002 at Stones River National Battlefield, Tennessee, confirms the successful establishment of native grasses on the earthworks of Fortress Rosecrans. Constructed in 1863, Fortress Rosecrans was the largest enclosed earthen fortification built during the Civil War. When the National Park Service acquired 26 acres of the site in 1993, it was engulfed in exotic plants. To preserve and interpret this historic structure and cultural landscape, park staff implemented a restoration plan.

The plan involved cutting woody species, treating invasive plants with herbicides, and planting warm-season native grasses. The native grasses were selected to revegetate the earthworks because they have extensive root systems that stabilize the structures. The native species are also adapted to the hot, often dry conditions and low-nutrient soils of middle Tennessee. Once established, these plants require less maintenance, which reduces the impact of human activity on the structures. The Cultural Resources Stewardship Division of the Southeast Region is compiling proto-

Water diversion structure aids fish and agriculture

by Kenneth Hyde

In 2002 a new water diversion structure and fish screen in John Day Fossil Beds National Monument, Oregon, restored fish travel in Rock Creek and reduced withdrawals needed to irrigate historical hayfields. Since 1899, irrigation water has been diverted from the creek to two hayfields in the monument. Limited water reached the fields because of seepage while traveling 2 miles in an unlined ditch. Stacked rocks diverted much of the creek's water during summer and blocked passage upstream for most fish species. The diversion hampered colder-water fish, such as the threatened summer steelhead *(Oncorhynchus mykiss)*, limiting their ability to reach cooler water during hot summers.

In 2002 a partnership with the Grant Soil and Water Conservation District and the Oregon Department of Fish and Wildlife, and funding from the NPS Recreational Fee Demonstration Program, allowed construction of a technologically advanced diversion structure and fish screen to encourage fish passage. The new diversion employs a channel that allows all fish species to pass in summer. The diversion stanchions lie flat in winter, facilitating natural stream-related processes. The fish screen returns fish entering the irrigation ditch back to Rock Creek within 50 yards of the diversion, so they are not entrapped in the ditch or fields. In 2003 the park will install pipe in the remaining unlined segments of the ditch, improving water delivery. ■

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NPS PHOTO BY KEN HYDE

cols and lessons learned from the restoration process into an earthworks management manual.

Park staff monitored plots in 2000, 2001, and 2002. Analysis of these data in 2002 reveals that native grass cover has increased significantly. Native forbs, invasive species, and vines also appear to be increasing; however, these trends are not statistically significant. These findings will be used to adjust management practices. Today, as a result of science-based restoration efforts by cultural and natural resource managers, the historic structures are stabilized, native species have regained their place in the landscape, and exotic species are managed. ■

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Helicopter tree removal improves butterfly habitat

by Daphne Hatch

During three days of near-perfect weather in late February 2002, the collaborative efforts of more than 100 people culminated in the helicopter removal of invasive Monterey pine trees *(Pinus radiata)* from 10.5 acres within Golden Gate National Recreation Area (California). The trees were removed to improve habitat for the mission blue butterfly *(Icaricia icarioides missionensis)*, a species listed as federally endangered. The butterflies feed on lupines *(Lupinus albifrons)*, which the Monterey pine trees deprive of sunshine and water. When the lupines die, so do the butterflies.

A high public profile accompanied the project because the restoration area is within view of the Golden Gate Bridge. Success hinged on a number of factors, including timing and clear communication with the public. Timing the project was complicated by the bird nesting season (March to August), the flight season of the butterfly (March to July), summer fog, and the raptor migration at Hawk Hill (August to December), the project's location. The trees to be removed were on steep slopes in the midst of butterfly habitat, with the roots of some trees damaging coastal defense fortifications. Additionally, the project involved road closures and detours that affected the public.

After careful analysis, park staff chose tree removal by helicopter as the most suitable method to minimize ground disturbance on steep slopes in sensitive habitat. Winter presented the best opportunity for removing the trees, avoiding the fog and minimizing conflicts with hawks and butterflies. An outreach campaign for park visitors and the media resulted in strong public support and cooperation. Not only did the project restore endangered species habitat, but it also protected coastal defense fortifications, enhanced scenic vistas, and improved visibility of the hawk migration. The Recreational Fee Demonstration Program provided funding for the project. ■

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Creating pollinator-friendly plant communities in an urban park

by Gopaul Noojibail

Pollination of flowering plants by animals provides a service to society that is both biologically significant and economically important. Unfortunately, native pollinators such as bees, butterflies, and moths have been on the decline in recent years, and some experts believe that these declines are reaching crisis levels. In 2002, National Capital Parks–Central initiated an experimental project to increase native insect pollinator populations in Washington, D.C., and the National Capital Region. The effort sought to restore native plant communities in East Potomac Golf Course (photo, shown three months after seeding), located on national parkland in downtown Washington, D.C.

NPS PHOTO BY GOPAUL NOOJIBAIL

East Potomac Golf Course is an important natural oasis in a predominantly urban landscape that can serve as an example of how habitat renewal can be achieved within urban areas. Once restored, roughs and out-of-play areas within the golf course will function as refuges for plants and their insect pollinators, increasing pollinator movement throughout the region. Native plant communities also offer the benefit of low, long-term costs once established. Information on the effectiveness of restoring pollinator habitat generated by the project will be used to make decisions about the placement of additional sites within the region.

The golf course is host to more than 115,000 visitors a year; this project will significantly increase its interpretive and educational significance, giving park staff the opportunity to communicate the value of golf courses to both urban and regional ecosystems. ■

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Fire Ecology Program gets organized

by Greg Eckert

As a result of congressional funding of the National Fire Plan, the NPS Fire Management Program has hired more than 30 fire ecologists and stationed them at national and regional offices and in national parks. Most of these staff are qualified as professional scientific ecologists, having met the eligibility requirements for a series 408 ecologist; a few are working toward these qualifications through university graduate degree programs or continuing education. Impetus for the Fire Ecology Program developed from an increasing need for technical expertise in several areas:

- Collection, analysis, and interpretation of fire effects data
- Adaptive management
- Liaison between fire and resource management at park, regional, and national levels
- Collaboration with other government agencies and nongovernmental organizations
- Various levels of park management planning (general, resource, fire, and prescribed fire)
- Landscape-level assessments

The Fire Management and Natural Resource Program Centers called for the new emphasis on integrating natural resource and fire management. The Fire Ecology Program will work to provide the best science for managers addressing risks of how and where to apply fire on the landscape or to withhold it. In addition, it is working with the Natural Resource Program Center (NRPC) to design a workshop for developing conceptual ecological models, identifying desired future park conditions, assessing risks related to fire, and interdisciplinary planning. A pilot version of this course will be held in spring 2003.

The Fire Ecology Program has historically revolved around monitoring long-term ecological trends associated with prescribed fire in a limited number of national parks. The recent staffing increases will enable the program to provide services to all regions and many more park units. In addition, the scope of the program will grow to include monitoring fire effects for both prescribed and wildland fire and data storage and analysis. New fire effects monitoring software is being developed to facilitate broader analysis, including spatial analysis. The new application will support monitoring techniques and protocols associated with fire and resource management. All fire monitoring data will be archived in regional and national databases and made available over the Internet.

NPS PHOTO (BOTH)

These photographs compare a vegetation plot at Everglades National Park, Florida, that has experienced normal fire frequency and intensity (top) with one that has not had fire for 30 years. With its unnaturally thick vegetation, the fire-exclusion site would require mechanical and other treatments before fire could be restored as a natural process. The Fire Ecology Program will provide support for fire management and restoration in park landscapes.

The Fire Management Program Center is hiring a fire ecologist to be located at the NRPC office in Fort Collins, Colorado. This position will manage the national fire effects database and the new software application and serve as a liaison between the Fire Management Program and the Natural Resource Program Center. ■

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